the author suggests the possibility of using this principle in the study of the course of the nerves in the brain and cord. Since, moreover, the resistance to the nervous impulse may be supposed to increase with the length of the nerve fibre, the above-described relation between the diameter and length of the fibre suggests the possibility of a physiological compensation which might well be the theme of further research.

In regard to techinque, the author remarks upon the difficulty of obtaining accurate measurements of the fibres in transverse sections, especially of the spinal nerve-roots, on account of the lack of absolute parallelism in the fibres and the consequent obliquity of sections of some of the elements. He therefore prefers and practises the measurement of the isolated fibres seen from the side, and for the isolation recommends the following methods: If a small animal, such as the frog, is used, the trunk is macerated in 20% nitric acid at 40° C. and then washed. The fibres, by this method, retain their natural diameter, but are very fragile and must be protected from pressure of the cover-glass.

If single trunks are to be examined, he suggests that they be treated for twenty-four hours with 1% osmic acid, washed, and kept in glycerine acidulated with nitric acid for some time at a temperature of 40° C. The amount of acid required is greater for the mammalia than for the amphibia. Thus, for the latter he uses 1% and macerates for twenty-four hours at 40° C.; while in the former a 3% solution is necessary, and a maceration of two or three days. The diameter of the fibres, by this method, is well preserved and the isolation easy.—T. MITCHELL PRUDDEN, M.D.

b.—PHYSIOLOGY OF THE NERVOUS SYSTEM.

NERVES OF THE RECTUM.—Dr. Fellner has made experiments upon this point. He irritated the nervi erigentes, which caused a contraction of the longitudinal fibres of the rectum. The circular muscles of the rectum remain undisturbed. They are called into activity by nerves springing from the posterior mesenteric ganglion, and going to the hypogastric plexus. The nervi erigentes and the hypogastric nerves stand in an antagonistic relation to the rectum, similar to that of the uterus. Between the irritation of the nerve and the commencement of muscular contraction, there is a latent period of about one second.—*Centralblatt für die med. Wiss.*, 1882, No. 22.

IRRITABILITY OF THE SCIATIC NERVE.—Zederbaum and Kronecker have been trying the effect of nerve-stretching upon the irritability of it. Most of the experiments were made upon the sciatic nerve of the frog. Near the bend of the knee a cushion of hard rubber pressed upon the nerve for the distance of nine millimetres. The sacral plexus above was irritated by pushing the secondary coil of DuBois toward the primary till a muscular contraction ensued. The weakest current that would cause a contraction was taken as an index of the irritability. Then the plate of rubber was loaded with weights, and again the irritability was tested. Finally, the weight was removed, and a third test of irritability made. By a series of experiments during the course of several hours the irritability continuously rose till shortly before death, when it suddenly sank. The main result was that the irritability of the nerve, with the weight, in the beginning sank ; that by a certain weight it increased, but above a favorable weight the increased pressure lessened the excitability. Five hundred grammes seemed to be the highest weight favorable to the excitability, when it pressed upon the nine millimetres of nerve. The differences in excitability increase with the amount of difference in weight.—*DuBois' Archiv*, 1882.

ACTION OF PIPERIDIN AND CONIIN.—Fliess and Kronecker have been testing the action of these two bodies.

At the request of Herr A. W. Hofmann, Dr. Kronecker made a few comparative experiments upon the toxicological relation of piperidin and coniin, and found that between these two poisons a remarkable parallelism existed, as both substances are poisonous to nerves, paralyzing them. A parallelism existed in their chemical reactions. Piperidin mainly paralyzes the sensory ; coniin, like curare, the motor tract. Fliess has studied this more in detail, with the following results :

1. *Piperidin.*—In medium doses (.01 gramme) it removes the reflex irritability in about ten minutes. The reflex-time by small doses is at first lengthened, and soon returns to normal. The inhibitory apparatus in the brain is not paralyzed. The central nervous organs are not paralyzed. The motor nerves are not affected. The paralysis is in the peripheral termination of the sensory nerves. Piperidin in large doses arrests the breathing in frogs for a minute. The pulse-frequency after small doses of piperidin sinks to about two thirds of the normal number. When piperidin is directly

conducted through the heart it removes the heart-beat, but the muscular substance is not injured.

2. *Coniin.*—It paralyzes first the peripheral ends of motor nerves; later, the centre. In the beginning it calls out an excitation of the inhibitory apparatus. The convulsions seen in warm-blooded animals does not appear in frogs, not because of the paralysis of the motor nerves. The frequency of the breathing is first increased and then decreased. The pulse-frequency after small doses falls. When coniin is conducted through the heart it does not affect the cardiac muscle.—*DuBois' Archiv*, 1882.

MUSCARIN.—Franz Högyes has made experiments upon animals with muscarin and arrived at the following results:

1. Muscarin increases the excitability of striped muscle-fibre.

2. It depresses very rapidly the functional activity of the central nervous system, and lessens the excitability of the peripheral nerves.

3. The dilatation of the blood-vessels after an injection of muscarin is an immediate result of the paralytic action of this poison on the vaso-motor centre. Later, there ensues a depression of the smooth muscle-cells.—*DuBois' Archiv*, 1882.

EXCITATION AND INHIBITION.—Luchsinger decapitated a viper far below the medulla oblongata, and hung it up by a band loosely applied to the neck, when the play of the rhythmic movements began. It tried to raise its body by rhythmic movements for a minute, then suddenly sank relaxed and remained so about three minutes, when it began the movements again. If at the beginning of a series of rhythmic movements a place on the skin is slightly touched, the snake's body suddenly falls. Here the snake's own weight is the exciting irritant of the rhythm, and the touch calls out a reflex inhibition, of which this is a simple demonstration.—*Pflüger's Archiv*, Band xxvii, 3 and 4 Heft.

RAPIDITY OF NERVE-FORCE.—René has made further experiments upon the rapidity of the transmission of nerve-force, and found it in man, as a mean, to be twenty metres per second. All the numbers expressing the rapidity of nerve-force in nerves, either sensory or motor, exhibit considerable differences, according to the individual, or the procedure, or the region excited, or even in the same individual. The intensity of the excitation has an important function; the rate of transmission augmenting with it, especially in sensory nerves. For the motor nerves, when the excitation becomes strong, the rapidity diminishes. In locomotor ataxia there is a considerable retardation of rapidity of transmission of nerve-force, whilst in the beginning of general paralysis the rate is more rapid than normal.—*Gazette des hôpitaux*, 1882, No. 46.

MOTOR CENTRES.—Brown-Séquard has made a large number of experiments which, to him, appear to demonstrate that the existence of motor centres in the brain and the path of the pyramidal columns, as now held, are not to be admitted. He cut the left half of the pons Varolii, and found that the right half of the body had increased in power, and that the left had lost power; on one side dynamogeny, on the other side inhibition. He then made a section of the left half of the cord below the medulla, and found that the left half of the body, primarily enfeebled, became stronger in a state of dynamogeny. A median vertical section of the pons and medulla oblongata caused no paralysis. The irritation of a motor centre, after a hemisection of the spinal cord on the opposite side, caused a bipedic, diagonal movement; that is to say, sometimes a simultaneous movement of the right arm and the left leg, sometimes of the left arm and the right leg.—*Le progrès médical*, No. 17, 1882. ISAAC OTT, M.D.

c—GENERAL PATHOLOGY OF THE NERVOUS SYSTEM.

TO WHAT EXTENT IS SYPHILIS THE CAUSE OF TABES, AND WHAT ARE THE RESULTS OF AN ANTI-SYPHILITIC TREATMENT OF THE LATTER?—Prof. Leyden, *Berlin. Zeitschrift für klin. Med.*, iv, p. 475. The author expresses his views as follow: "Although I willingly acknowledge that the theory of syphilitic tabes numbers among its adherents names of good scientific repute, yet I must declare most decidedly against this theory and refuse to recognize an etiological connection between syphilis and tabes." He then reviews the opinions of others on this subject, referring particularly to Erb's contributions. After calling attention to the fact that Erb is not a dualist respecting syphilis, and pointing out the effect of this on his statistics, upon which his whole argument rests, he says: "Statistics in medicine are valued highly by